AMENDMENT - UNMARKED VERSION

Presented below are the amendments in a clean, unmarked format with changes entered and not marked.

In the Claims:

16. (Amended once) An apparatus comprising:

an analog photocell;

a sample and hold amplifier, a first input to the sample and hold amplifier being an output from the analog photocell, a second input to the sample and hold amplifier being a reference voltage, the sample and hold amplifier producing an output that is a scaled version of the output of the analog photocell, the scaled version of the output of the analog photocell being based at least in part on the reference voltage; and

an analog to digital converter, the analog to digital converter converting the output of the sample and hold amplifier to a digital value.

17. (Cancelled)

18. (Amended twice) The apparatus of claim 18, wherein the scaled version of the output of the analog photocell produced by the sample and hold amplifier is chosen to match the dynamic range of the analog photocell with the dynamic range of the analog to digital converter.

19. (Unchanged - amended once previously) The apparatus of claim 18, wherein the output of the sample and hold amplifier is scaled based, at least in part, on ambient light conditions.

20. (Unchanged) The apparatus of claim 16, wherein the analog to digital converter comprises:

a voltage controlled oscillator, an input of the voltage controller oscillator being a output from the sample and hold amplifier; and

a counter, the counter being driven by an output of the voltage controlled oscillator.

21. (Unchanged) The apparatus of claim 20, further comprising a memory, the memory storing an output of the counter.

22. (Amended once) The apparatus of claim 21, wherein the counter is reset after a certain period of time.

23. (Unchanged) The apparatus of claim 22, wherein the period of time is an integration time for the analog photocell.

24. (Amended once) A method comprising:

inputting a charge of a analog photocell to a sample and hold amplifier;

inputting a reference voltage to the sample and hold amplifier;

modifying the scale of the analog photocell charge using the sample and hold amplifier, the modification of the scale of the analog photocell charge being based at least in part on the reference voltage; and

converting an output of the sample and hold amplifier to a digital value.

25. (Cancelled)

26. (Amended twice) The method of claim 24, wherein the scale of the analog photocell charge is modified by the sample and hold amplifier to match a dynamic range of the analog photocell to a dynamic range appropriate for converting the output of the sample and hold amplifier to a digital value.

27. (Unchanged - amended once previously) The method of claim 26, wherein the scale of the analog photocell charge is based, at least in part, on ambient light conditions.

28. (Unchanged) The method of claim 24, wherein converting the output of the sample and hold amplifier to a digital value comprises:

applying an output of the sample and hold amplifier to a voltage controlled oscillator; and

driving a counter using the output of the voltage controlled oscillator.

29. (Unchanged) The method of claim 28, wherein a count from the counter is proportional to the intensity of light on the analog photocell during a previous integration time period for the photocell.

30. (Unchanged) The method of claim 29, further comprising storing a count from the counter in a register.

31. (Unchanged) The method of claim 30, further comprising resetting the counter after the passage of the integration time period for the photocell.

32. (Amended once) An digital photocell comprising:

an analog photocell;

a sample and hold amplifier, a first input of the sample and hold amplifier being an output of the analog photocell and a second input of the sample and hold amplifier being a reference voltage;

a voltage controlled oscillator, an input to the voltage controlled oscillator being an output of the sample and hold amplifier, the sample and hold amplifier scaling the input to the voltage controlled oscillator based at least in part on the reference voltage;

a counter, a speed at which the counter operates being controlled by an output of the voltage controlled oscillator; and

a register, the register storing an output of the counter.

33. (Unchanged) The digital photocell of claim 32, wherein the counter counts for a specified time period and wherein the counter is reset at the end of the time period.

34. (Unchanged) The digital photocell of claim 32, wherein the time period is an integration time period for the analog photocell.

35. (Unchanged) The digital photocell of claim 34, wherein the output stored in the register is a digital value that reflects an intensity of light incident on the analog during the previous integration time period.

36. (Unchanged) The digital photocell of claim 32, wherein the digital photocell is included in a pixel array.

37. (Canceled)

38. (Amended once) The digital photocell of claim 32, wherein the input to the voltage controlled oscillator is scaled based at least in part on ambient light levels.

39. (Amended once) A method comprising:

applying an output of a analog photocell as a first input to a sample and hold amplifier;

applying a reference voltage as a second input to the sample and hold amplifier;

modifying the scale of the output of the analog photocell using the sample and hold amplifier, the modification of the scale of the output of the analog photocell being based at least on the reference voltage; and

applying the output of the sample and hold amplifier to a voltage controlled oscillator;

driving a counter with the output of the voltage controlled oscillator;

saving a count from the counter; and

resetting the counter at the conclusion of a time period.

40. (Unchanged) The method of claim 39, wherein the time period is an integration period of the analog photocell.

41. (Unchanged) The method of claim 39, wherein the count from the counter is saved in a register.

42. (Unchanged) The method of claim 39, wherein the count from the counter is proportional to intensity of light incident on the analog photocell.